

REMARKS

Applicant is in receipt of the Office Action mailed August 14, 2007. Claim 1 has been amended to more clearly claim embodiments of the invention. New claims 40-42 have been added. Applicant submits that no new subject matter has been entered and/or introduced in the amendments. Claims 1-42 are currently pending in the application.

35 U.S.C. § 103 Rejection:

Claims 1-39 were rejected under 35 U.S.C. 103(a) as being unpatentable over Chapuis et al. (U.S. Patent No. 7,049,798 B2, herein referred to as “Chapuis1”) in view of Chapuis et al. (U.S. Patent No. 7,000,125 B2, herein referred to as “Chapuis2”).

Applicant submits that the claims as presented in the prior Response are allowable over the cited references. However, in order to expedite prosecution, Applicant has amended the claims to more clearly claim embodiments of the invention.

Applicant also notes that in a prior Office Action and in the Advisory Action of November 26, 2007, the Examiner had stated that Applicant’s arguments were not persuasive because they relied on elements that were purportedly not present in the claims. Applicant has thus amended the claims herein to more clearly claim embodiments of the invention.

Accordingly, Applicant respectfully submits that the he cited references taken together or separately do not teach or suggest a system in which a plurality of digital power management devices are operable to communicate with each other over the control and communication bus to receive information from each other to coordinate their functions, where each of the plurality of digital power management devices is configured to receive information transmitted onto the bus by other digital power management devices of the plurality of digital power management devices, and each of the plurality of

power management devices is configured to perform one or more of its functions based on the information transmitted onto the bus by the other digital power management devices.

Applicant further submits that the cited references taken together or separately do not teach or suggest a system in which a plurality of digital power management devices are configured to communicate with each other over the control and communication bus to receive information from each other to coordinate their functions, where in receiving information from each other to coordinate their functions, the plurality of digital power management devices are configured to receive information transmitted onto the bus by any of the plurality of digital power management devices, and each of the plurality of power management devices is configured to perform one or more of its functions based on information received from any of the plurality of power management devices.

Applicant also submits that the cited references taken together or separately do not teach or suggest a system in which a plurality of digital power management devices are operable to communicate with each other over a control and communication bus to receive information from each other, with the plurality of digital power management devices configured to receive status information transmitted onto the bus by other digital power management devices of the plurality of digital power management devices, and with each of the plurality of power management devices configured to perform one or more of its functions based on the status information received from the other digital power management devices, where the status information comprises status of respective functions of the other digital power management devices.

Applicant respectfully submits that there is no specific teaching in Chapuis1 of POL regulators receiving information from each other by each POL regulator receiving information transmitted onto the bus by other POL regulators. There is simply no teaching or suggestion in Chapuis1 of information transmitted onto the bus by one POL regulator being received by another POL regulator, either directly or through a controller.

Applicant also submits that the presence of the controller in the system disclosed

by Chapuis1, taken together with the only method of transmitting information taught in figure 5, is indicative of Chapuis1 teaching away from a system configuration in which the POL regulators are enabled and configured to perform one or more of their functions based on the information received from other POL regulators, since in the system of Chapuis1 the controller is responsible for controlling the function of the POL regulators, based on information the controller receives from the POL regulators

Applicant further submits that Chapuis1 is very clear on the specific role of the controller in managing the system from a central location, whether the controller is configured outside or inside a POL regulator, while each POL regulator is merely operable to control its own functions (see column 5, lines 47-58) independently of other POL regulators. While Chapuis2 teaches that the “POL regulators communicate with each other over the current share interface” and a “synch/data line may be used to communicate synchronization information to permit phase interleaving of the POL regulators”, claim 1, recites a plurality of digital power management devices that are operable to communicate with each other over the control and communication bus to receive information from each other that were transmitted onto the control and communication bus by the POL regulators. It is clear from Chapuis2 that the current share interface is distinct and different from the control and communication bus, and cannot be construed as a control and communications bus because of the specific role of the current share bus to enable current sharing functionality.

Further to the point, Applicant submits that the specification of Chapuis2 discloses distinct multiple buses coupling selected ones of the POL regulators to each other (in contrast to claim 1, which discloses a single control and communication bus that couples all the digital power management devices), each bus in Chapuis2 serving a different function. In Figure 3 of Chapuis2, an intra-device interface is provided between individual ones of the POL regulators to enable current share, e.g., current share interface (CS1) provided between POL0 106 and POL1 108, and CS2 provided between POL4 112 and POLn 114 (see column 4, lines 45-49). Chapuis2 also discloses a controller (102) distinct from the POL regulators, which communicates with the POL regulators by

writing and/or reading digital data via a serial bus, illustrated in FIG. 3 as the synch/data bus (see column 5, lines 1-5). In addition, Chapuis2 states that one of the functions of the system controller is fault management (which is also one example of “coordinating functions” as disclosed in the Present Application), which is achieved through the system controller’s communicating with the POL regulators over a second bus (OK/fault bus in figure 3) that is distinct from the synch/data bus (see column 5, lines 11-15). Thus this operation of Chapuis2 is not relevant to the present claims.

Applicant submits that the communication between the POL regulators disclosed in Chapuis2 is in fact descriptive of current sharing, which is well understood by those skilled in the art. Current sharing is achieved not over the control and communication bus but over a dedicated current share interface which does not couple all the POL devices together, merely pairs of POL devices, and which is used in addition to the control and communication (synch/data) bus that does couple all the POL devices together (see FIG. 3). It is clear from at least these teachings that the intra-device interfaces (CS1 and CS2) are therefore also clearly distinct from both the OK/fault bus and the synch/data bus, and that the current-share interfaces are not meant to be interpreted as comprising a control and communication bus. This is underlined by the fact that Chapuis2 clearly identifies the OK/fault bus and the synch/data bus as control and communication buses, and clearly identifies the current share interface as being specifically configured to allow POL regulators to operate in parallel to produce a single output voltage (see column 4, lines 45-57).

Applicant also submits that information received by the POL regulators from sources other than the controller is disclosed by Chapuis1 as comprising fault monitoring data, which, as Chapuis1 also clearly indicates, originates from an external device or sense circuit corresponding to the given POL regulator (see figure 3-2, which discloses an example of the configuration of sense circuit 330), with the fault monitoring data containing information on the given POL regulator or its output (see column 5, lines 13-17). It is thus clear from the specification of Chapuis1, including the figures, that Chapuis1 teaches a central controller performing the monitoring of the POL regulators,

and any coordination of the functions of the POL regulators (see also column 8, lines 18-33). Summarily, Chapuis1 provides no teaching or motivation for a plurality of digital power management devices that are operable to receive information from each other to coordinate their functions, and teaches away from such a concept by the inclusion of a central controller required for monitoring the POL regulators.

For at least these reasons, Applicant submits that the combinations of features recited in claims 1, 41, and 42 are not taught or suggested by Chapuis1 and/or Chapuis2, taken separately or together. In other words, whether taken singly or in combination, Chapuis1 and/or Chapuis2 do not teach, suggest or anticipate a system in which a plurality of digital power management devices are operable to communicate with each other over a control and communication bus to receive information from each other, where the information is transmitted onto the control and communications bus by the digital power management devices, and where each digital power management device is configured to perform one or more of its functions based on the received information. Applicant also submits that since independent claims 1, 41, and 42 have been shown to be patentably distinct, respective dependent claims 2-40 are also patentably distinct for at least the same reasons. Accordingly, Applicant respectfully requests removal of the 35 U.S.C. § 103(a) rejection.

CONCLUSION

In light of the foregoing amendments and remarks, Applicant submits the application is now in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above-referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. The Commissioner is hereby authorized to charge any fees which may be required or credit any overpayment to Meyertons, Hood, Kivlin, Kowert & Goetzel P.C., Deposit Account No. 50-1505/5900-00101/JCH.

Also filed herewith are the following items:

- ☐ Request for Continued Examination
- ☐ Terminal Disclaimer
- ☐ Power of Attorney By Assignee and Revocation of Previous Powers
- ☐ Notice of Change of Address
- ☐ Other:

Respectfully submitted,

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